BROOKHAVEN NATIONAL LABORATORY

fact Muon Collaboration

Progress Report

J. Scott Berg
Brookhaven National Laboratory
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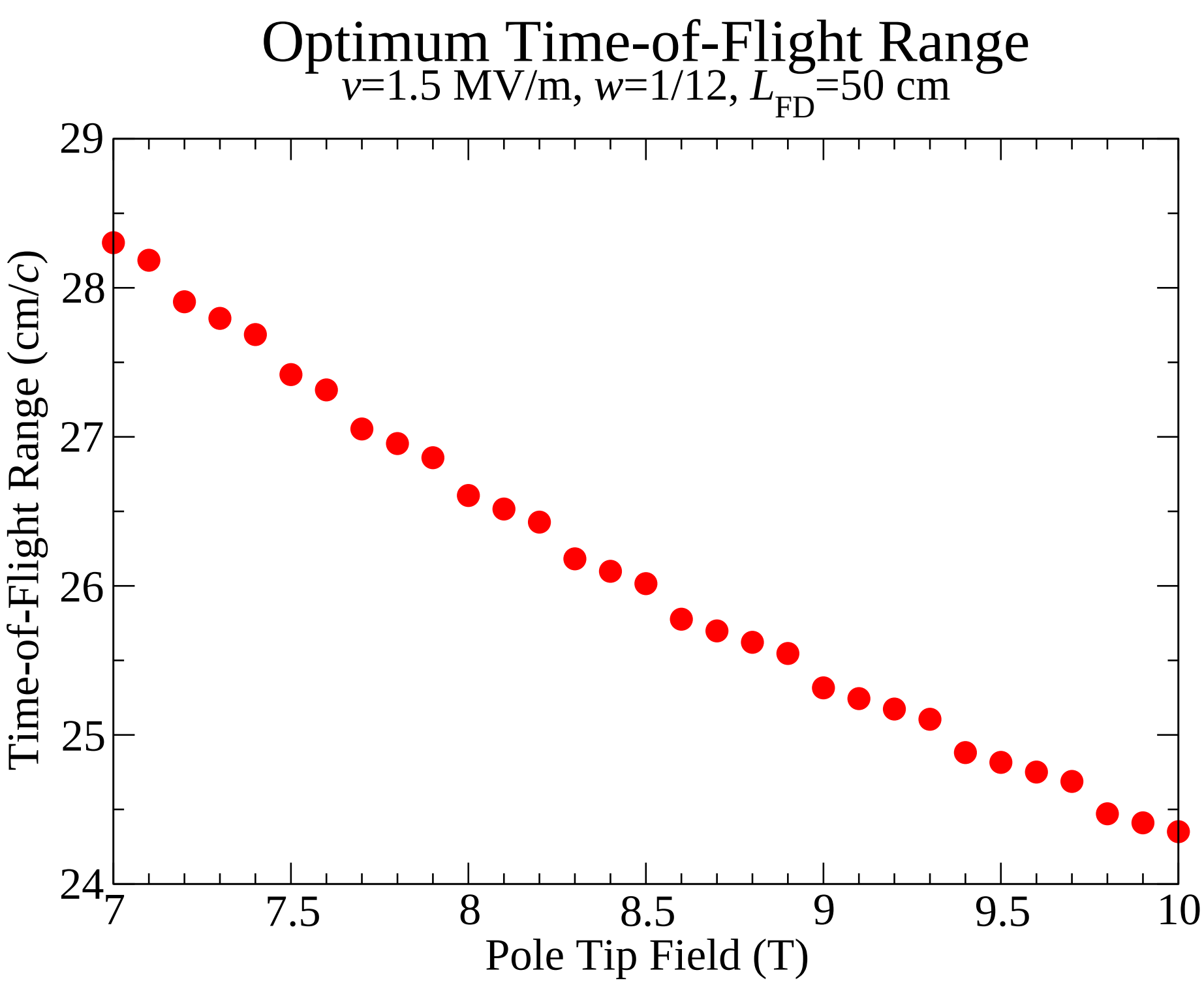
FFAG03, KEK

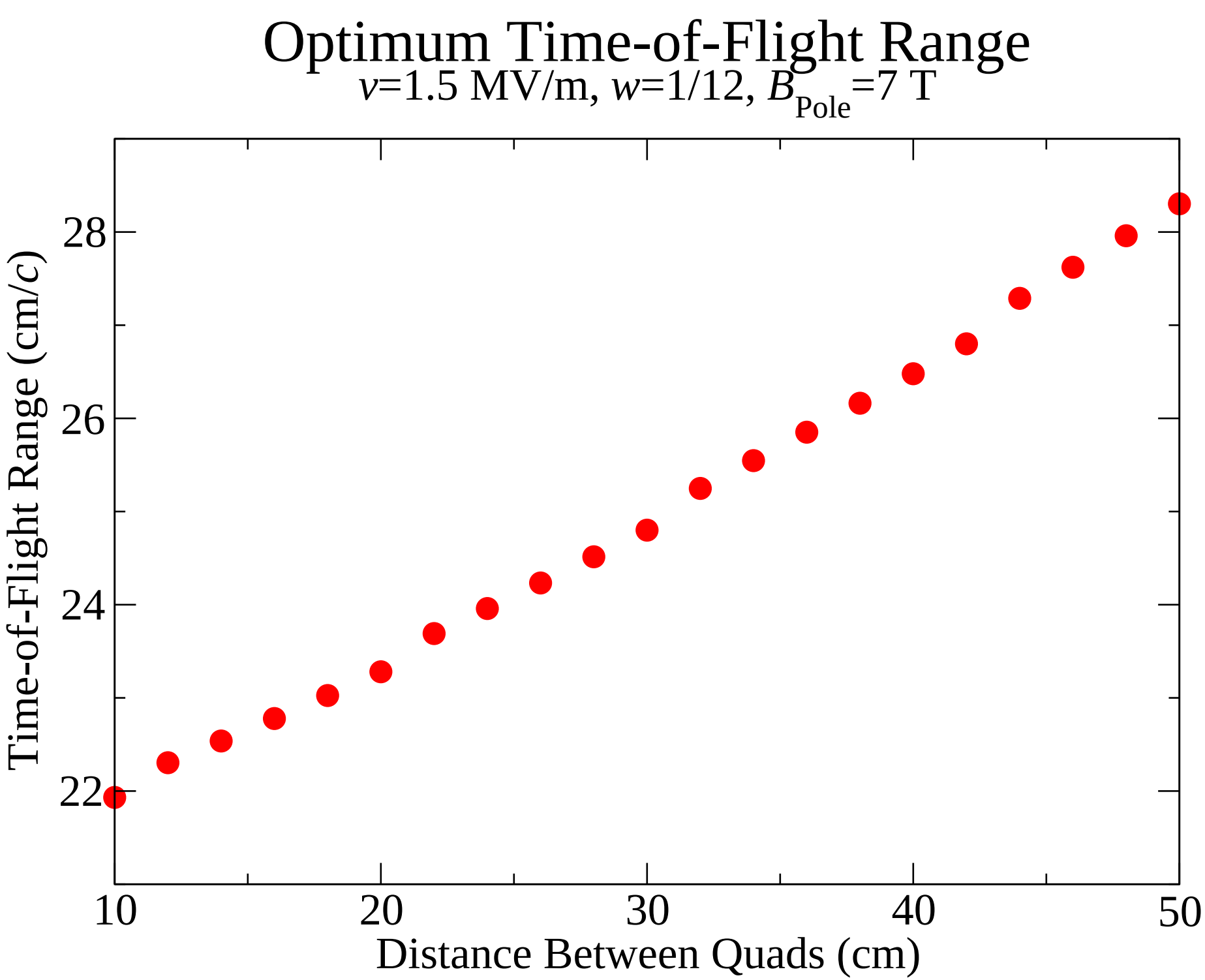
Effect of Input Parameters on Optimization

- Optimized lattice that I showed for 10–20 GeV had 28 cm time-of-flight range
- Dejan had a lattice with a 18 cm time-of-flight range
- What causes the differences?

	Dejan	Scott
D quad pole tip	8.4 T	7 T
F quad pole tip	10.2 T	7 T
Drift between quads	17 cm	50 cm
Gradient required for $w = 1/12$	2.15 MV/m	1.5 MV/m

- Increasing pole tip fields, reducing drift between quads, and increasing required gradient all result in reduction in time-of-flight range
- Make optimized lattice with 10.2 T pole tips, 17 cm drift between quads, and 2.15 MV/m: get 374 m ring with 15.3 cm time-of-flight range.


Optimum Time-of-Flight Range
v=1.5 MV/m, w=1/12, L_FD=50 cm
Time-of-Flight Range (cm/c)
29
28
27
26
25
24
7
7.5
8
8.5
9
9.5
10
Pole Tip Field (T)


Optimum Time-of-Flight Range
v=1.5 MV/m, w=1/12, B_Pole=7 T
Time-of-Flight Range (cm/c)
28
26
24
22
10
20
30
40
50
Distance Between Quads (cm)